3.6 Roadway Capacity Deficiencies

> ***Capacity***
>
> Maximum number of vehicles that can travel over a given section of roadway during a given period of time, under prevailing roadway and traffic conditions, while still maintaining a level of service that is acceptable to drivers

Roadway Capacity deficiencies occur wherever the travel demand volume of a roadway is close to or higher than the vehicle capacity of that roadway. The travel demand is expressed in terms of the total number of vehicles that choose to use a particular roadway on the way to their destinations. The existing travel demand volumes for Granville County are based upon traffic count data taken annually by the NCDOT Traffic Survey Unit. Projected 2035 travel demand is based on anticipated population growth, historic traffic projections, and Granville County's adopted land use plan, and is developed with the aid of the Triangle Regional Travel Demand Model. This model covers all of Durham, Orange, and Wake Counties, and portions of Chatham, Franklin, Granville, and Johnston Counties. The version of the Triangle Regional Model used in this study (trm25v5-2001) has a base year of 1995 and uses future years of 2005, 2015, and 2025 for projection purposes. The 2025 model volumes were adjusted and projected forward to the year 2035 for the purposes of this study.

The Triangle Regional Model was in the process of being updated with new population, economic and land use data during the course of this study. The updated Triangle Regional Model has a base year of 2002 and uses future years of 2010, 2020, and 2030 for projection purposes. Due to the uncertain completion date of the updated model, the elected officials of Granville County decided in May 2006 to proceed with the study using the trm25v5-2001 version of the Triangle Regional Model.

Many factors contribute to the capacity of a roadway, including:

- Roadway Geometry, including number of lanes, horizontal and vertical alignment, and proximity of perceived obstructions to safe travel along the roadway
- Typical roadway users, such as commuters, recreational travelers, and commercial vehicles
- Control of access to streets and driveways along the roadway
- Development adjacent to the roadway, including residential, commercial, and industrial land uses
- Number of traffic signals along the roadway
- Peaking characteristics of the traffic on the roadway (i.e a spike in traffic at rush hour versus relatively constant traffic all day)
- Characteristics of intersecting roads along a facility
- Directional split of traffic along the roadway, or the percent of vehicles traveling in each direction at a given time of day

The relationship of travel demand to roadway capacity determines the level-of-service (LOS) of a roadway. Six distinct levels-of-service are possible, with letter designations